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10/535,066

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EXAMINER

BERNS, DANIEL J

ART UNIT

PAPER NUMBER

1793

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<i>Office Action Summary</i>	Application No.	Applicant(s)	
	10/535,066	RYTTER ET AL.	
	Examiner	Art Unit	
	DANIEL BERNS	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2009.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) 19-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 58-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/13/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/13/05 and 3/15/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Applicant's election of Group I, claims 1-18 and 58-63 in the reply filed on 1/14/09 is acknowledged. Because applicant did not distinctly and specifically point out any supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The restriction requirement is still deemed proper and thus made FINAL.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 63 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the claim sets forth an acceptable ASTM attrition value range of <20, for particles of 20-100 µm average size. As described by the 2001 edition of ASTM D4058-96 (attrition standard test method) (full citation appears in PTO-892), the ASTM attrition

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measurement system is meant for measuring attrition values of catalysts and catalyst carriers of approx. 1.6-19 mm size (*see id.*)- these values being 16-190 times the size of claim 58's particles, from which claim 63 depends. Claim 63 is thus indefinite as the measurements claimed are inapplicable to the particle sizes in claim 58, from which claim 63 depends.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-11, 16-18, and 58-63 are rejected under 35 U.S.C. 102(b) as being anticipated by Espinoza et al., EP 0736326 A1 (document appears in applicant's Information Disclosure Statement – "IDS") ("Espinoza")¹. Regarding claim 1, Espinoza discloses a calcined, alumina-supported cobalt catalyst for Fischer-Tropsch reactions with the following properties: an average particle size of 50-150 μm (*see id.* at p. 4, ln. 10 and 22; Table 5; Ex. 60-65); a specific surface area of $>80 \text{ m}^2/\text{g}$ (*see id.* at Table 5; Ex. 60-65); an average pore size of $>9 \text{ nm}$ (*see id.* at p. 3, ln. 15; Table 4; Fig. 3); and a pore volume of $>0.35 \text{ cm}^3/\text{g}$ (*see id.* at Table 5; Ex. 60-65).

¹ Applicant should note that EP 0736326 B1 (also appearing in applicant's IDS) to Espinoza et al. is virtually identical to Espinoza's EP 0736326 A1, the main differences being those of layout and location of the various disclosures within. These documents are substantively identical, and reference to the A1 document shall be understood to also refer to the appropriate passage in the B1 document as well.

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Regarding claim 2, Espinoza discloses a specific surface area value of 150 80 m²/g (*see id.* at Table 5; Ex. 60-65), said value both within and anticipating the claimed range. *See, e.g., Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (internal citations omitted) (“*TMC*”); MPEP 2131.03.

Regarding claim 3, Espinoza discloses particle size ranges substantially within and encompassing the claimed range, anticipating the same. *See id.* at p. 4, ln. 10 and 22; Table 5; Ex. 60-65. *TMC*; MPEP 2131.03.

Regarding claims 4-5, Espinoza discloses pore sizes satisfying the claimed ranges, thus anticipating the same. *See id.* at p. 3, ln. 15; Table 4; Fig. 3. *Titanium Metals*; MPEP 2131.03.

Regarding claim 6, Espinoza discloses various catalysts possessing specific surface areas and average pore sizes satisfying the claimed ranges, thus anticipating the same. *See id.* at Tables 3-4; supports 26 and 28-31, corresponding to catalysts 50 and 52-55. *TMC*; MPEP 2131.03.

Regarding claim 7, Espinoza discloses various catalysts possessing pore volumes satisfying and thus anticipating the claimed ranges. *See id.* at Table 5; Ex. 60-65. *TMC*; MPEP 2131.03.

Regarding claim 8, Espinoza discloses various catalysts incorporating less than 3 wt. % promoter, anticipating the claimed range. *See id.* at Table 6; Ex. 60-65. *TMC*; MPEP 2131.03.

Regarding claim 9, Espinoza discloses the use of Re or Pt as a promoter for its catalyst(s). *See id.* at Table 6; Ex. 60, 62-63, and 65.

Regarding claim 10, Espinoza discloses the use of gamma alumina as its catalyst support material. *See id.* at Table 5; Ex. 60-65.

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Regarding claim 11, Espinoza's gamma alumina carrier may be stabilized with a structural promoter agent (aka “stabilizing agent”). *See id.* at p. 2, ln. 52-54.

Regarding claim 16, Espinoza discloses a specific surface area value of 150 m²/g (*see id.* at Table 5; Ex. 60-65), within and thus anticipating the claimed range. *TMC*; MPEP 2131.03.

Regarding claims 17-18, Espinoza discloses specific cobalt wt. % values within the claimed ranges, anticipating the same. *See id.* at Table 6; Ex. 60-65, especially 63-64. *TMC*; MPEP 2131.03.

Regarding claims 58 and 61-62, Espinoza discloses various alumina-supported catalysts possessing average particle and pore size values within the claimed ranges, anticipating the same. *See id.* at p. 4, ln. 10 and 22; Tables 2-5; Ex., *e.g.*, 60-65. *TMC*; MPEP 2131.03.

Regarding claim 59, Espinoza discloses catalyst supports with pore volumes within the claimed range, anticipating the same. *See id.* at Table 3. *TMC*; MPEP 2131.03

Regarding claim 60, Espinoza discloses catalyst supports with specific surface areas within the claimed range, anticipating the same. *See id.* at Tables 3 and 5; Ex., *e.g.*, 60-65. *TMC*; MPEP 2131.03.

Regarding claim 63, the support of claim 58 (from which claim 63 depends) may reasonably be expected to inherently possess and satisfy the limitation of claim 63, since the latter merely states a property of claim 58's support. As such, claim 63 is *prima facie* anticipated by Espinoza (*see id.* at p. 4, ln. 10 and 22; Tables 2-5; Ex., *e.g.*, 60-65). *See In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430,433 (CCPA 1977); MPEP 2112.01. The inherent relationship between Espinoza's carrier material and the attrition value thereof is further illustrated by Bayense et al., WO 00/25918 (2000) (“Bayense-WO”), corresponding to US 7,351,393

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(published 4/1/08; U.S. effective filing date: 6/19/01) (“Bayense-US”), which detail ASTM D4058 attrition values below 5 wt. % for alumina carriers of similar characteristics as those described in Espinoza (as above) and claim 58, from which claim 63 depends. *See* Bayense-WO at p. 1, ln. 1-3, p. 2, ln. 15-19, p. 4, ln. 26-30, p. 5, ln. 22; clm. 6; Bayense-US at col. 1, ln. 4-6 and 59-62, col. 3, ln. 7-11 and 38; clms. 6 and 10.

8. Claims 1-5, 7-10, 17-18, 58, and 60-63 are rejected under 35 U.S.C. 102(e) as being anticipated by Hu et al., WO 02/089978 (reference appears in applicant’s IDS) (“Hu”), or, in the alternative, under 35 U.S.C. 103(a) (statutory text provided below) as unpatentable over the same. Regarding claim 1, Hu discloses a calcined, alumina-supported cobalt catalyst for Fischer-Tropsch reactions (*see id.* at p. 6, ln. 4-5, p. 7, ln. 15, p. 9, ln. 5-6, and p. 15, ln. 3-6) with the following properties: an average particle size of ~60 to ~150 μm (*see id.* at p. 9, ln. 9-11; Table I); a specific surface area of $>80 \text{ m}^2/\text{g}$ (*see id.* at p. 9, ln. 11; Table I); an average pore size within a range of ~8 to ~20 nm, substantially greater than the claimed 9 nm value (*see id.* at p. 9, ln. 12-13; Table I); and a pore volume of $>0.35 \text{ cm}^3/\text{g}$ (*see id.* at p. 9, ln. 12). Said values are substantially within and/or encompass the claimed ranges, anticipating the same. *TMC*; MPEP 2131.03.

Regarding claim 2, Hu discloses various surface area values within the claimed range, anticipating the same. *See id.* at p. 9, ln. 11; Table I. *TMC*; MPEP 2131.03.

Regarding claim 3, Hu’s particle size range substantially encompasses the claimed range and has an endpoint therein, anticipating the same. *See id.* at p. 9, ln. 9-11. *TMC*; MPEP 2131.03.

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Regarding claims 4-5, Hu discloses average pore sizes of ~8 to ~20 nm as well as specific values within this range, anticipating the claimed range. *See id.* at p. 9, ln. 12-13; Table I. *TMC*; MPEP 2131.03.

Regarding claim 7, Hu's pore volume size range substantially encompasses the claimed range and has an endpoint therein, anticipating the same. *See id.* at p. 9, ln. 12. *TMC*; MPEP 2131.03.

Regarding claim 8, Hu discloses catalyst compositions comprising less than 3 wt. % promoter. *See id.* at p. 8, ln. 21 to p. 9, ln. 2; Table I.

Regarding claim 9, Hu discloses Re and Pt as preferred promoters. *See id.* at p. 8, ln. 12-13; Table I.

Regarding claim 10, Hu discloses the use of gamma-alumina as a recommended catalyst support material. *See id.* at p. 9, ln. 5-6.

Regarding claims 17-18, Hu discloses catalysts with cobalt contents within the claimed wt. % ranges, anticipating the same. *See id.* at Table I. *TMC*; MPEP 2131.03.

Regarding claim 58, Hu discloses various alumina-supported catalysts possessing average particle and pore size values within the claimed ranges, anticipating the same. *See id.* at p. 9, ln. 9-13. *TMC*; MPEP 2131.03.

Regarding claim 59, Hu discloses catalyst supports with pore volumes within the claimed range, anticipating the same. *See id.* at p. 9, ln. 12-13. *TMC*; MPEP 2131.03.

Regarding claim 60, Hu discloses catalyst supports with specific surface areas within the claimed range, anticipating the same. *See id.* at p. 9, ln. 11; Table I. *TMC*; MPEP 2131.03.

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Regarding claims 61-62, Hu discloses alumina, silica, and titania catalyst support materials. *See id.* at p. 9, ln. 5-7.

Regarding claim 63, the support of claim 58 (from which claim 63 depends) may reasonably be expected to inherently possess and satisfy the limitation of claim 63, since the latter merely states a property of claim 58's support. As such, claim 63 is *prima facie* anticipated by Hu (*see id.* at p. 9, ln. 9-13). *In re Best*; MPEP 2112.01. The inherent relationship between Hu's carrier material and the attrition value thereof is further illustrated by Bayense-WO and Bayense-US, which detail ASTM D4058 attrition values below 5 wt. % for alumina carriers of similar characteristics as those described in Hu (as above) and claim 58, from which claim 63 depends. *See* Bayense-WO at p. 1, ln. 1-3, p. 2, ln. 15-19, p. 4, ln. 26-30, p. 5, ln. 22; clm. 6; Bayense-US at col. 1, ln. 4-6 and 59-62, col. 3, ln. 7-11 and 38; clms. 6 and 10.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. In considering the obviousness rejections below, the applicant should note that the person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in the application reasonably reflect this level of skill.

13. Claims 1-12, 16-18, and 58-63 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Espinoza in view of Singleton et al., US 6,255,358 (2001) ("Singleton").

14. The above rejection is noted. If there is a difference due to lack of specificity of the examples cited above versus the claims, then the teachings render the claims obvious. Regarding claims 11-12, whereas Espinoza fails to explicitly disclose the use of lanthanum as a stabilizing agent for its gamma-alumina supported cobalt catalyst, these limitations are taught by Singleton. Singleton teaches the doping of gamma-alumina supported cobalt catalysts of similar characteristics to those in Espinoza and claim 1 with lanthanum to provide the support with increased thermal stability. *See* Singleton at col. 3, ln. 51-56, col. 4, ln. 8-25, 30, and 45-54, and col. 10, ln. 11-15. Singleton teaches that such lanthanum-doping of the alumina carrier not only increases the latter's thermal stability, but also increases the catalyst's activity for Fischer-Tropsch ("F-T") syntheses without negatively affecting its selectivity therein. *See id.* at col. 10, ln. 11-15. Given the similar nature of Espinoza and Singleton's catalysts, and Singleton's

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teaching of improved thermal stability and F-T activity by doping the same with lanthanum, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ lanthanum as a stabilizer for Espinoza's catalyst as taught by Singleton.

15. Claims 1-11, 13-18, and 58-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Espinoza in view of Hansford, US 3,988,263 (1976). Regarding claim 13, Espinoza fails to disclose the inclusion of a binder in its alumina support. This limitation, however, is taught by Hansford. Hansford teaches the production of calcined, alumina-supported cobalt catalysts, wherein the support contains a binder to improve the catalysts' pellet strength and thermal stability. *See* Hansford at col. 1, ln. 54-62, col. 2, ln. 64-67, and col. 3, ln. 59-66; Ex. 10. Given that Hansford and Espinoza's disclosures similarly relate to the formation of alumina-supported cobalt catalysts, and Hansford's teaching that the inclusion of a binder within the support material yields improved catalyst structural and thermal stability, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a binder material within Espinoza's alumina support as taught by Hansford.

Regarding claims 14-15, Hansford teaches alumina hydrogels or hydrosols as its binder materials, said material(s) being present within Hansford's alumina support in amounts of 10-25 wt. %, rendering the claimed range *prima facie* obvious. *See, e.g., In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976) (holding that a *prima facie* case of obviousness exists where claimed ranges "overlap or lie inside ranges disclosed by the prior art"); MPEP § 2144.05.

16. Claims 1-5, 7-10, 16-18, 58, and 60-63 are rejected under 35 U.S.C. 102(e) as being unpatentable over Hu. Regarding claim 16, whereas Hu's taught surface area range does not contain specific values within the claimed range, Hu's range nevertheless encompasses the

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claimed range, rendering the latter *prima facie* obvious. *See, e.g., In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976) (holding that a *prima facie* case of obviousness exists where claimed ranges “overlap or lie inside ranges disclosed by the prior art”); MPEP § 2144.05.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL BERNS whose telephone number is (571)270-5839. The examiner can normally be reached on Monday thru Thursday, 9AM-6PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Stanley Silverman can be reached at (571)272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. B./ February 20, 2009
Examiner, Art Unit 1793

/Stuart Hendrickson/
Primary Examiner, Art Unit 1793